

Principles of Biology I  
BIOL 1711.002    Fall 2006    TR 9:30-10:50

BIOL 1710 is the first half of a two-semester 1<sup>st</sup> year Biology sequence designed for science majors, students who require a biology class which will meet the requirements for Biology majors (e.g. premedical or other preprofessional students who may be completing a non-biology major). The intent of this course sequence is to provide the student with a broad background in biology that can serve as a prerequisite for higher-level courses if desired.

**TEXT.** “Biology” by Raven and Johnson, Seventh Edition, 2005.

**TESTING.** You will be given four in-class examinations (Exam IV will be during the final exam period). All exams will count equally toward your final grade, with each having a value of 100 points. Exam IV will not be comprehensive, but will be over material covered after Exam III. Attendance is required for all exams. Any student missing any of the first three exams for whatever reason will be required to take the comprehensive make-up exam at the end of the semester. The comprehensive exam at the end of the semester will cover materials from the entire course. Students that have taken all of the first 3 exams may take the comprehensive exam and drop a lower score from an earlier exam. A grade of “I” will only be given to students who miss exam IV because of a documented sickness or other emergency. Any student found cheating on any exam will receive a zero (0) for that exam and may face other disciplinary action(s). Old exams and course notes are posted on Dr. Benjamin’s website: [www.biol.unt.edu/molecular](http://www.biol.unt.edu/molecular) (go to the BIOL 1710/1711 listings).

**RECITATIONS.** You must be enrolled in one of the recitation sections for this course. BIOL 1711.221 is the recitation section reserved for this lecture section. Attendance at recitations is mandatory. This time will be used to give and return quizzes, return and go over lecture exams and to review weekly lecture material.

**LABORATORY.** You should enroll in a laboratory section of BIOL 1730.

**GRADES.** Your grade will be calculated from a combination of the four exam scores (maximum 100 pts each) and your quiz scores from recitation (total 50 pts):

$$\frac{\text{Exam I} + \text{Exam II} + \text{Exam III} + \text{Exam IV} + \text{Quizzes}}{450} = \text{final grade (\%)}$$

Contact the Course Director or the proctor/grader for questions or concerns about grades.

**OFFICE HOURS.** If you are having any problems with any aspect of the course, you are encouraged to talk with your laboratory teaching assistant or the graduate assistant responsible for recitation, or see me. Please feel free to drop by offices or schedule an appointment if preferred. Individuals for this section and their offices are:

Dr. Robert Benjamin	Biology Rm. 411	ext. 3217	Course Director
Meredith Turnbough	Biology Rm. 407	369-8721	Recitation, Proctor/Grader

e-mail addresses: [benjamin@unt.edu](mailto:benjamin@unt.edu) ; [mat0032@unt.edu](mailto:mat0032@unt.edu)

**\*\*\*NOTE** – The best way to contact Meredith is via e-mail. Do **NOT** rely on voice mail messages left on the laboratory phones.\*\*\*

**STUDENTS WITH DISABILITIES.** Students with disabilities should register with the UNT Disabilities Office and contact the course director to inform them as to their needs. Every effort will be made to meet their requirements.

COURSE SYLLABUS/LECTURE SCHEDULE  
BIOL 1711  
PRINCIPLES OF BIOLOGY I

LECTURE	DATE	TOPIC	LECTURER	CHAPTER
1	Aug 29	Scientific method using Darwin as an example. Basic chemistry, chemical elements of life, chemical bonds, molecules, oxidation, water.	RCB	1,2
2	Aug 31	Biological chemistry, structure of organic molecules. Carbohydrates: monosaccharides, disaccharides, polysaccharides. Lipids: fatty acids, triglycerides, phospholipids, steroids. Proteins: structure, function, enzymes. Nucleic acids: DNA, RNA.	RCB	2,3
3	Sept 5	Biological Chemistry, continued. Origin of Life. The first cells.	RCB	3,4
4	Sept 7	Cell structure and function. Prokaryotic cell structure. Eukaryotic cell structure. Nucleus. Endoplasmic reticulum. Golgi. Lysosomes. Ribosomes. Centrioles. Cytoskeleton, motility.	RCB	5
5	Sept 12	Cell structure and function. Principles of membrane structure and function, plasma membranes. Transport across membranes.	RCB	6
6	Sept 14	Cell-cell interactions, cell signaling.	RCB	7
7	Sept 19	EXAM I (covers through lecture 6 material)		
8	Sept 21	Cell metabolism. Energy. Enzymes. ATP. Coenzymes.	RCB	8
9	Sept 26	Cell metabolism. Anaerobic metabolism. Aerobic respiration: citric acid cycle, electron transport chain. Fatty acid metabolism. Fermentation.	RCB	9
10	Sept 28	Photosynthesis. Structure of chloroplasts. Light energy capture. Processes. Thylakoid membranes. Oxidation-reduction reactions.	RCB	10

		Energy Intermediates. Carbon fixation. Rates of photosynthesis. Ecological aspects of photosynthesis.		
11	Oct 3	Cellular reproduction. Eukaryotic chromosomes. The cell cycle and mitosis.	RCB	11
12	Oct 5	Meiosis: reduction division, gamete formation, genetic recombination.	RCB	12
13	Oct 10	Gregory Mendel. Mendelian genetics. Monohybrid crosses. Gene pairs. Dominant and recessive inheritance.	RCB	13
14	Oct 12	Mendelian genetics. Dihybrid crosses. Independent assortment. Test crosses. Modifications of Mendelian ratios. Codominance. Multiple alleles. Polygenic and multifactorial characters.	RCB	13
15	Oct 17	Exam II (covers material from lectures 8 through 14)		
16	Oct 19	Linkage. Human genetics and genetic diseases. Genetic counseling.	RCB	13
17	Oct 24	Population genetics. Hardy-Weinberg Law. Measurement of genetic variation.	RCB	21
18	Oct 26	Population genetics (continued)	RCB	21
19	Oct 31	DNA as the genetic material. ☞Last day to drop☞	RCB	14
20	Nov 2	DNA structure. DNA replication.	RCB	14
21	Nov 7	Genes. Genetic Code	RCB	14,15
22	Nov 9	EXAM III (covers material from lectures 16 through 21)		
23	Nov 14	Transcription and translation.	RCB	15
24	Nov 16	Gene Technology	RCB	16
25	Nov 21	Genomes, Control of Gene Expression	RCB	17,18
	Nov 23	Thanksgiving Holiday (no class)		

26	Nov 28 Cellular Mechanisms of Development	RCB	19
27	Nov 30 Cancer Biology and Cell Technology Transgenic organisms. Animal cloning	RCB	20
28	Dec 5 Cancer Biology and Cell Technology Transgenic organisms. Animal cloning	RCB	20
29	Dec 7 Dead week. Optional review session.	RCB	
30	Dec 12 <b><u>8:00-10:00 AM</u></b> Exam IV (covers material from lectures 23 - 28) and Comprehensive Make-up Exam <b>PLEASE NOTE 8 AM START TIME</b> <i>Further Note: After the first student leaves the exam room, late arrivals may not take Exam IV</i>		

**\*\***The full final exam schedule can be found at:  
<http://essc.unt.edu/registrar/fall/final.htm>